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Tuesday, July 05, 2011

Of wages and money: cost as a proxy measure of value

The subjective theory of value, used by the Salamanca school in Renaissance Spain and most recently in neoclassical and Austrian economics, is undoubtedly the correct one, despite the fact that figures ranging from Smith to Ricardo to Marx used labor as a fundamental measure of value. This labor theory of value is profoundly wrong. If I spend hours digging a hole in your back yard, that doesn't provide you any value unless you wanted a hole in your back yard.

Nevertheless, as we shall see, using labor, or more generally cost, as a measure of value is a common strategy of our institutions and in itself often quite valuable thing to do. How does this come about? The key to the puzzle is Yoram Barzel's idea of a proxy measure, which I have described as follows:

> The process of determining the value of a product from observations is necessarily incomplete and costly. For example, a shopper can see that an apple is shiny red. This has some correlation to its tastiness (the quality a typical shopper actually wants from an apple), but it's hardly perfect. The apple's appearance is not a complete indicator -- an apple sometimes has a rotten spot down inside even if the surface is perfectly shiny and red. We call an indirect measure of value -- for example the shininess, redness, or weight of the apple -- a proxy measure. In fact, all measures of value, besides prices in an ideal market, are proxy measures -- real value is subjective and largely tacit.
>
> Such observations also come at a cost. It may take some time to sort through apples to find the shiniest and reddest ones, and meanwhile the shopper bruises the other apples. It costs the vendor to put on a fake shiny gloss of wax, and it costs the shopper because he may be fooled by the wax, and because he has to eat wax with his apple. Sometimes these measurement costs comes about just from the imperfection of honest communication. In other cases, such as waxing the apple, the cost occurs because rationally self-interested parties play games with the observable...
>
> Cost can usually be measured far more objectively than value. As a result, the most common proxy measures are various kinds of costs. Examples include:
>
> (a) paying for employment in terms of time worked, rather than by quantity produced (piece rates) or other possible measures. Time measures sacrifice, i.e. the cost of opportunities foregone by the employee.
>
> (b) most numbers recorded and reported by accountants for assets are costs rather than market prices expected to be recovered by the sale of assets.

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Nick Szabo

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(c) non-fiat money and collectibles obtain their value primarily from their scarcity, i.e. their cost of replacement.

(From "Measuring Value").

The proxy measure that dominates most of our lives is the time wage:

> To create anything of value requires some sacrifice. To successfully contract we must measure value. Since we can't, absent a perfect exchange market, directly measure the economic value of something, we may be able to estimate it indirectly by measuring something else. This something else anchors the performance – it gives the performer an incentive to optimize the measured value. Which measures are the most appropriate anchors of performance? Starting in Europe by the 13th century, that measure was increasingly a measure of the sacrifice needed to create the desired economic value.
>
> This is hardly automatic – labor is not value. A bad artist can spend years doodling, or a worker can dig a hole where nobody wants a hole. Arbitrary amounts of time could be spent on activities that do not have value for anybody except, perhaps, the worker himself. To improve the productivity of the time rate contract required two breakthroughs: the first, creating the conditions under which sacrifice is a better estimate of value than piece rate or other measurement alternatives, and second, the ability to measure, with accuracy and integrity, the sacrifice.
>
> Piece rates measure directly some attribute of a good or service that is important to its value – its quantity, weight, volume, or the like -- and then fix a price for it. Guild regulations which fixed prices often amounted to creating piece rates. Piece rates seem the ideal alternative for liberating workers, but they suffer for two reasons. First, the outputs of labor depend not only on effort, skills, etc. (things under control of the employee), but things out of control of the employee. The employee wants something like insurance against these vagaries of the work environment. The employer, who has more wealth and knowledge of market conditions, takes on these risks in exchange for profit.
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> In an unregulated commodity market, buyers can reject or negotiate downwards the price of poor quality goods. Sellers can negotiate upwards or decline to sell. With piece rate contracts, on the other hand, there is a fixed payment for a unit of output. Thus second main drawback to piece rates is that they motivate the worker to put out more quantity at the expense of quality. This can be devastating. The tendency of communist countries to pay piece rates, rather than hourly rates, is one reason that, while the Soviet bloc's quantity (and thus the most straightforward measurements of economic growth) was able to keep up with the West, quality did not (thus the contrast, for example, between the notoriously ugly and unreliable Trabant of East Germany and the BMWs, Mercedes, Audi and Volkswagens of West Germany).
>
> Thus with the time-rate wage the employee is insured against vagaries of production beyond his control, including selling price fluctuations (in the case of a market exchange), or variation in the price or availability of factors of production (in the case of both market exchange or piece rates). The employer takes on these risks, while at the same time through promotion, raises, demotions, wage cuts or firing retaining incentives for quality employee output.
>
> Besides lacking implicit insurance for the employee, another limit to market purchase of each worker's output is that it can be made prohibitively costly by relationship-specific investments. These investments occur when workers engage in

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> interdependent production -- as the workers learn the equipment or adapt to each other. Relationship-specific investments can also occur between firms, for example building a cannon foundry next to an iron mine. These investments, when combine with the inability to write long-term contracts that account for all eventualities, motivate firms to integrate. Dealing with unspecified eventualities then becomes the right of the single owner. This incentive to integrate is opposed by the diseconomies of scale in a bureaucracy, caused by the distribution of knowledge, which market exchange handles much better. These economic tradeoffs produce observed distributions of firm sizes in a market, i.e. the number of workers involved in an employment relationship instead of selling their wares directly on a market.
>
> The main alternative to market exchange of output, piece rate, or coerced labor (serfdom or slavery) consists of the employers paying by sacrifice -- by some measure of the desirable things the employee forgoes to pursue the employer's objectives. An hour spent at work is an hour not spent partying, playing with the children, etc. For labor, this "opportunity cost" is most easily denominated in time – a day spent working for the employer is a day not spent doing things the employee would, if not for the pay, desire to do.
>
> Time doesn't specify costs such as effort and danger. These have to be taken into account by an employee or his union when evaluating a job offer. Worker choice, through the ability to switch jobs at much lower costs than with serfdom, allows this crucial quality control to occur.
>
> It's usually hard to specify customer preferences, or quality, in a production contract. It's easy to specify sacrifice, if we can measure it. Time is immediately observed; quality is eventually observed. With employment via a time-wage, the costly giving up of other opportunities, measured in time, can be directly motivated (via daily or hourly wages), while quality is motivated in a delayed, discontinuous manner (by firing if employers and/or peers judge that quality of the work is too often bad). Third parties, say the guy who owned the shop across the street, could observe the workers arriving and leaving, and tell when they did so by the time. Common synchronization greatly reduced the opportunities for fraud involving that most basic contractual promise, the promise of time.
>
> Once pay for time is in place, the basic incentives are in place – the employee is, verifiably, on the job for a specific portion of the day – so he might as well work. He might as well do the work, both quantity and quality, that the employer requires. With incentives more closely aligned by the calendar and the city bells measuring the opportunity costs of employment, to be compensated by the employer, the employer can focus observations on verifying the specific quantity and qualities desired, and the employee (to gain raises and avoid getting fired) focuses on satisfying them. So with the time-wage contract, perfected by northern and western Europeans in the late Middle Ages, we have two levels of the protocol in this relationship: (1) the employee trades away other opportunities to commit his time to the employer – this time is measured and compensated, (2) the employee is motivated, by (positively) opportunities for promotions and wage rate hikes and (negatively) by the threat of firing, to use that time, otherwise worthless to both employer and employee, to achieve the quantity and/or quality goals desired by the employer.

(from From "A Measure of Sacrifice")

Proxy measures also explain how money can depend on standards of nature instead of a singular trusted third party:

> Although anatomically modern humans surely had conscious thought, language, and some ability to plan, it would have required little conscious thought or language, and very little planning, to generate trades. It was not necessary that tribe members reasoned out the benefits of anything but a single trade. To create this institution it would have sufficed that people follow their instincts to make obtain collectibles with the characteristics outlined below. (as indicated by proxy observations that make approximate estimations for these characteristics).

Utilitarian jewelry: silver shekels from Sumeria. The recipient of a payment would weigh the segment of coil used as payment and could cut it at an arbitrary spot to test its purity. A wide variety of other cultures, from the Hebrews and the famously commercial Phoenicians to the ancient Celtic and Germanic tribes, used such forms of precious metal money long before coinage.

At first, the production of a commodity simply because it is costly seems quite wasteful. However, the unforgeably costly commodity repeatedly adds value by enabling beneficial wealth transfers. More of the cost is recouped every time a transaction is made possible or made less expensive. The cost, initially a complete waste, is amortized over many transactions. The monetary value of precious metals is based on this principle. It also applies to collectibles, which are more prized the rarer they are and the less forgeable this rarity is. It also applies where provably skilled or unique human labor is added to the product, as with art.

(from "Shelling Out: The Origins of Money")

The rational price of such a monetary commodity will be, ignoring more minor effects (e.g. the destruction of monetary units) the lesser of:

(1) the value a monetary unit is expected to add to future transactions, i.e. what it will save in transaction costs

(2) the cost of creating a new monetary unit

Since (1) cannot be objectively measured, but at best can only be intuitively estimated, as long as one is confident that (1)>(2) the cost of creating a monetary unit becomes a good proxy measure of the value of the monetary unit. If monetary units are not fungible, but their costs are comparable, their relative value can be well approximated by their relative costs even if (2)>=(1). If the expected value of a monetary unit drops below the replacement cost, gold miners (for example) stop creating new monetary units (in the case of gold miners, if their production costs exceed this expected value they stop mining gold), holding the money supply steady which minimizes inflation. If it goes above replacement costs more gold mines can be affordably worked, increasing the money supply as the economy grows without inflation. This all depends on having a secure floor to replacement costs, which is well approximated by gold and silver but violated by fiat currencies (as can be seen by for example comparing the rampant inflations of many 20th century fiat currencies against the quite mild, by comparison, inflations that followed discoveries such as Potosi silver in the 16th century and California gold in the 19th).

Sumerian shell money.

We often adapt institutions from prior similar institutions, and often by accident. So, for example, money can evolve from utilitarian commodities that have the best characteristics of money (securely storable, etc.) in a particular environment (e.g. cigarettes in a prison). But humans also have foresight and can reason by analogy, and so can design an exchange to trade new kinds of securities, a new kind of insurance service, or a new kind of currency.

Naturally such designs are still subject to a large degree of trial and error, of the creative destruction of the market. And they are subject to network externalities: to, roughly speaking, Metcalfe's law, which states the value

of a network is proportional to the square of the number of its members, and that a network of one is useless. A telephone is useless unless somebody else you want to talk to also has a telephone. Likewise, currency is useless unless one has somebody to buy from or sell to who will take or give that currency. Indeed, with money the situation is even worse than most networks, because unless that person wants to do a corresponding sell or buy back to you at a later date, the money will get "stuck." It will have zero velocity. One needs either specific cycles to keep money circulating (as with the ancient kula ring), or a second currency with such cycles that can be exchanged for the first. Thus, the marketing problem of starting a new currency is formidable. Although Paypal was implementing just a payment system in dollars, not a new currency, it hit on a great strategy of general applicability: target specific communities of people that trade with each other (in Paypal's case, the popular eBay auction site).

But insisting that gold, silver, shells, online payment systems or currencies, etc. must be useful for some other purpose, such as decoration, before they can be used as money, is a terrible confusion, akin to insisting that an insurance service must start out as useful for something else, perhaps for stabling horses, before one can write the insurance contracts. Indeed many of us value precious metals and shells for decoration more for a reverse reason, which I explain in the above-linked essay on the origins of money.

Conclusion

The labor theory of value is wrong. Value is fundamentally a matter of subjective preferences. Nevertheless. Yoram Barzel's crucial idea of proxy measures allows us to understand why measures of labor and more generally measures of cost are so often and so usefully applied as measures of value in institutions, including wage contracts and non-fiat money.

Posted by Nick Szabo at 2:57 AM

5 comments:

Kevembuangga said...

There is an exactly relevant book about this by Jean-Joseph Goux: Frivolité de la valeur, essai sur l'imaginaire du capitalisme
His position is that value is indeed neither related to costs or utility but only to the *desire* of the potential buyers.
Unfortunately this book has never been translated to English and is out of print, with a few used copies at outrageous prices (a nice illustration of the subject matter ;-))

9:12 AM

Bron said...

I assume this comment "But insisting that gold, silver, shells, online payment systems or currencies, etc. must be useful for some other purpose, such as decoration, before they can be used as money, is a terrible confusion" is directed at those critical of bitcoin eg this thread http://mises.org/Community/forums/t/9853.aspx?PageIndex=1

10:20 PM

nick said...

Kevembuangga: since one definition of utility is happiness, the interesting juxtaposition is the too common disconnect between desires satisfied and happiness. :-)

Bron: Yes, that commentary and many others, alas.

11:27 PM

Beyond Anon said...

Because cost is a proxy measure of value, fast-talking sales people can make a killing by fooling the unwary.

In the same way, Credentials used to be a good proxy for Ability ...

2:02 PM

nazgulnarsil said...

any proxy will be gamed by those who notice the discrepancies between the proxy and the underlying preferences. There is a continual shuffle of new proxies as the old ones become better understood and thus more commonly, grossly gamed.

11:38 PM

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